

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) An ion implantation method, ~~characterized in that wherein~~ the method comprises the steps of:

generating continuously, by plasma generation means, plasma at least including implantation ~~target~~-ions and charged particles of a polarity opposite to that of the implantation ~~target~~-ions;

transporting the plasma onto a deposition ~~deposition-assistance~~-substrate under an influence of a magnetic field, wherein the direction of the applied magnetic field is from the plasma generation means to the deposition substrate;

giving acceleration energies to the implantation ~~target~~ ions by a DC bias voltage applied ~~by~~ to the deposition ~~deposition-assistance~~-substrate;

irradiating the plasma toward the deposition ~~deposition-assistance~~-substrate; and

implanting the implantation ~~target~~-ions into a material film on the deposition ~~deposition-assistance~~-substrate.

2. (currently amended) The ion implantation method of claim 1, ~~characterized in that~~ wherein the bias voltage has a polarity opposite to that of the implantation ~~target~~-ions.

3. (currently amended) The ion implantation method of claim 1, ~~characterized in that~~ wherein the plasma is irradiated to the material film deposited on the deposition ~~deposition-assistance~~-substrate, to implant the implantation ~~target~~-ions into the material film.

4. (currently amended) The ion implantation method of claim 1, ~~characterized in that~~ wherein the plasma is irradiated toward the deposition ~~deposition-assistance~~-substrate simultaneously with deposition of the material film onto the deposition~~deposition-assistance~~ substrate, to implant the implantation ~~target~~-ions into the material film.

5. (currently amended) The ion implantation method of claim 1, ~~characterized in that~~ wherein the implantation ~~target~~-ions are implanted into the material film by repeating the following steps:

a step of depositing a material film on the deposition ~~deposition-assistance~~-substrate; and

the step of irradiating the plasma toward the deposition ~~deposition-assistance~~-substrate.

6. (currently amended) The ion implantation method of claim 1, ~~characterized in that~~ wherein the ions are implanted into the material film ~~comprising fullerene~~ to produce containing-fullerene or hetero-fullerene within the material film.

7. (currently amended) The ion implantation method of claim 6, ~~characterized in that~~ wherein the acceleration energies are within a range of 10 eV inclusive to 500 eV inclusive.

8. (currently amended) The ion implantation method of claim 6, ~~characterized in that~~ wherein the acceleration energies are within a range of 20 eV inclusive to 500 eV inclusive.

9. (currently amended) The ion implantation method of claim 1, ~~characterized in that~~ wherein the material film is carbon nanotube, a material film is an ~~of organic EL~~ electroluminescent material, a material film of solar cell, a material film of fuel cell, an organic semiconductor material film, or an electroconductive polymer material film.

10. (currently amended) The ion implantation method of claim 9, ~~characterized in that~~ wherein the acceleration energies are within a range of 0.5 eV inclusive to 500 eV inclusive.

11. (currently amended) The ion implantation method of claim 1, ~~characterized in that~~ wherein the implantation ~~target~~ ions have an ionic current density of $1 \mu\text{A}/\text{cm}^2$ or more.

12. (currently amended) The ion implantation method of claim 1, ~~characterized in that~~ wherein the implantation ~~target~~ ions are implanted, by arranging a grid electrode in the plasma and separatedly from the deposition ~~deposition-assistance~~ substrate to thereby control a plasma potential by a voltage applied to the grid electrode.

13. (currently amended) The ion implantation method of claim 12, ~~characterized in that~~ wherein the grid electrode is located at a distance in a range of 1 mm inclusive to 50 mm inclusive from the deposition ~~deposition-assistance~~ substrate.

14. (currently amended) The ion implantation method of claim 1, ~~characterized in that~~ wherein the implantation ~~target~~ ions are implanted, by providing the deposition ~~deposition-assistance~~ substrate in a form of a plurality of divisional deposition ~~deposition-oriented~~ plates ~~in~~ having concentric circle shapes, and by independently controlling bias voltages applied to the plurality of deposition ~~deposition-oriented~~ plates.

15. (currently amended) The ion implantation method of claim 8, upon the implantation ~~target~~-ions being ~~are~~-implanted,
further comprising ~~by~~-cooling the deposition ~~deposition-~~
~~assistance~~-substrate by cooling means.

16. (currently amended) An ion implantation apparatus comprising:

a vacuum vessel;

plasma generation means for generating continuously plasma at least including implantation ~~target~~-ions and charged particles of a polarity opposite to that of the implantation ~~target~~-ions, within said vacuum vessel;

magnetic field generating means, wherein the direction of the applied magnetic field is from the plasma generation means to the deposition substrate;

a deposition ~~deposition-assistance~~-substrate arranged within said vacuum vessel;

bias voltage application means for applying a DC bias voltage to said deposition ~~deposition-assistance~~-substrate; and

material film deposition means for depositing a material film onto said deposition ~~deposition-assistance~~ substrate.

17. (currently amended) An ion implantation apparatus comprising:

a vacuum vessel;

plasma generation means for generating continuously plasma at least including implantation ~~target~~-ions and charged particles of a polarity opposite to that of the implantation ~~target~~-ions, within said vacuum vessel;

magnetic field generating means, wherein the direction of the applied magnetic field is from the plasma generation means to the deposition substrate;

a deposition ~~deposition-assistance~~-substrate arranged within said vacuum vessel; and

bias voltage application means for applying a DC bias voltage to said deposition ~~deposition-assistance~~-substrate.

18. (currently amended) The ion implantation apparatus of claim 16, ~~characterized in that wherein~~ said deposition ~~deposition-assistance~~-substrate ~~comprises~~ conveyed via a conveyor or rotary cylinder.

19. (currently amended) The ion implantation apparatus of claim 16, ~~characterized in that wherein~~ said apparatus includes a transport device comprising a belt conveyor or rotary cylinder, and

that said transport device is configured to support and transport a plurality of said deposition ~~deposition-assistance~~ ~~substrates~~ substrate within said vacuum device.

20. (currently amended) The ion implantation apparatus of claim 19, ~~characterized in that~~ wherein said deposition ~~deposition assistance~~ substrates are each supported to said transport device by an electroconductive clamp member.

21. (currently amended) The ion implantation apparatus of claim 17, ~~characterized in that~~ wherein said ion implantation apparatus further comprises cooling means for cooling said deposition ~~deposition assistance~~ substrate.